

Work Order ID 130845

March-26-15 1:24:04 PM

646.9711
B130845
R B V C

130845

Page 1

Item ID: 646.9711

Revision ID:

Item Name: Blade

Start Date: 3/26/15

Start Qty: 20.00

20

Required Date: 3/26/15

Req'd Qty: 20.00

20

Reference:

Accept

N900040100

Setup Start

NS1

Stop

NS2

Cust Item ID:

Customer:

Approvals:

Process Plan:

MCS

Date:

3-23-23

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

NR1

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

646.9700

C (ECN)

100

0.00

100

BAND SAW

Bandsaw

Memo

0.00

Jeaspa Bandsaw

Cut Blank at 4.625"

20

SL15-3-29

110

0.00

110

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FB135

DWG REV: C

FOLIO REV: AA

20

6

SL

15-04-02

2- deburr and break all sharp edges except otherwise noted

KNIFE EDGE MUST BE SHARPENED USING STONE, REMOVE ALL
BURRS ON CUTTING EDGE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence
		☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge
		☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other

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Work Order ID 130845

March-26-15 1:24:04 PM

130845

Page

Item ID: 646.9711

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Blade

Stop ***NS2***

Start Date: 3/26/15

Start Qty: 20.00

20

Cust Item ID:

Required Date: 3/26/15

Req'd Qty: 20.00

20

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150									
Packaging	Memo	0.00							20x 8015-04-28
Packaging									
155	QC5- Inspect part completeness to step on W/O	0.00							
155									
QC	Memo	0.00							DAG 38 C-89
Quality Control									
160	Spray Painting per QSI005 4.2	0.00							
160									
SprayPaint	Memo	0.00							20
Spray Painting	PRIME AS PER DWG, SEE NOTE #4								CA 1507
	PRIMER BATCH: 131277								

APR 28 2015

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Transport									
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Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence
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Work Order ID 130845

130845

Page 4

March-26-15 1:24:04 PM

Item ID: 646.9711 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Blade
 Start Date: 3/26/15 Start Qty: 20.00 ***20*** Cust Item ID:
 Required Date: 3/26/15 Req'd Qty: 20.00 ***20*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170 *170* QC Quality Control	QC14- Inspect Spray Paint Memo	0.00 0.00				<u>20</u>			DAE 38 9-89 MAY 01 2015
180 *180* Packaging Packaging	Identify as per dwg & Stock Location: <u>mt</u> Memo	0.00 0.00				<u>20</u>			DAE 27 9-89 MAY 05 2015
190 *190* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00				<u>ML3</u>			MAY 05 2015 ML3 MAY 05 2015

DQA: _____ Date: _____



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Picklist Print

March-26-15 1:24:03 PM

Page 1

Work Order ID: 130845

130845

Parent Item: 646.9711

646.9711

Parent Item Name: Blade

Start Date: 3/26/15

Required Date: 3/26/15

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP REV:A NEW ISSUE 12/09/24 JFS VERIFY BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	149.2170	0.386	8.126316			

MSTFFI -A2-B0 500X1 250

AISI A2 TOOL STEEL BAR, 0.500 X 1.250

SL 15-3-29

Location

Loc Qty

Loc Code

MAT010

149.217

M126438

21.217

M131783

128

A 7.81

DQA: _____ Date: _____



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APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04559

SHEET 1 OF 1

DWG NO. 646.9700

REV: C

PREPARED BY D. MEJIA

DATE: 06/11/2014

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY: ENGR *[Signature]*

MFG *[Signature]*

QC *[Signature]*

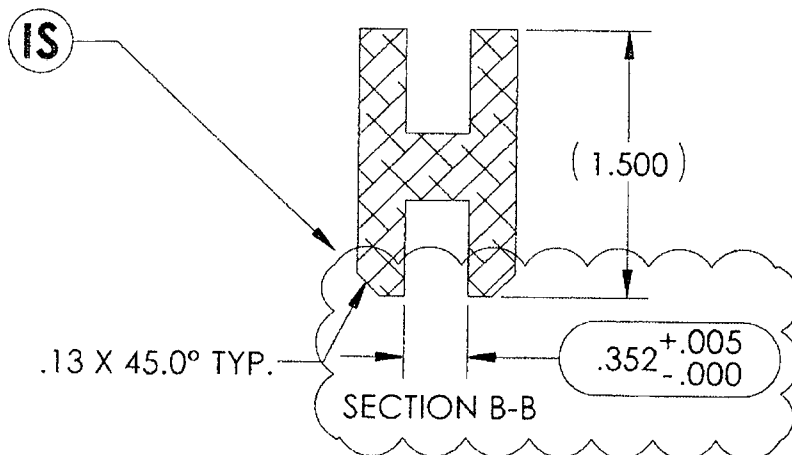
EFF. NEXT ORDER

TRANSACTION CODES (TC):
 A-ADD C-CREATE
 R-REVISE D-DELETE

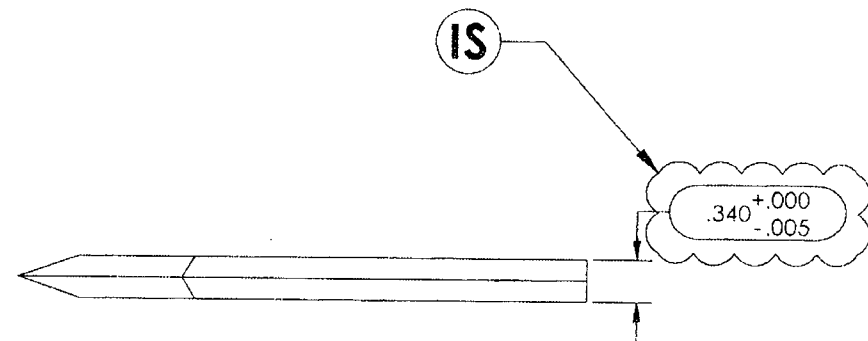
REASON: ADDED DIMENSION AND TOLERANCE

ECR: D-14-05

SHEET 2, ZONE D7 IS:



SHEET 5, ZONE B5 IS:



RETURN TO
 ENGINEERING
 FOR REVIEW
 DATE: 15-03-27

130845.MLS
 15-03-27

DOCUMENTS EFFECTED:

☐ MDL
 ☐ INSTALL INSTRUCTIONS
 ☐ ICA
 ☐ FMS
 ☐ BOM

CHANGE CATEGORY

☐ MAJOR
 ☒ MINOR

DER REVIEW REQUIRED

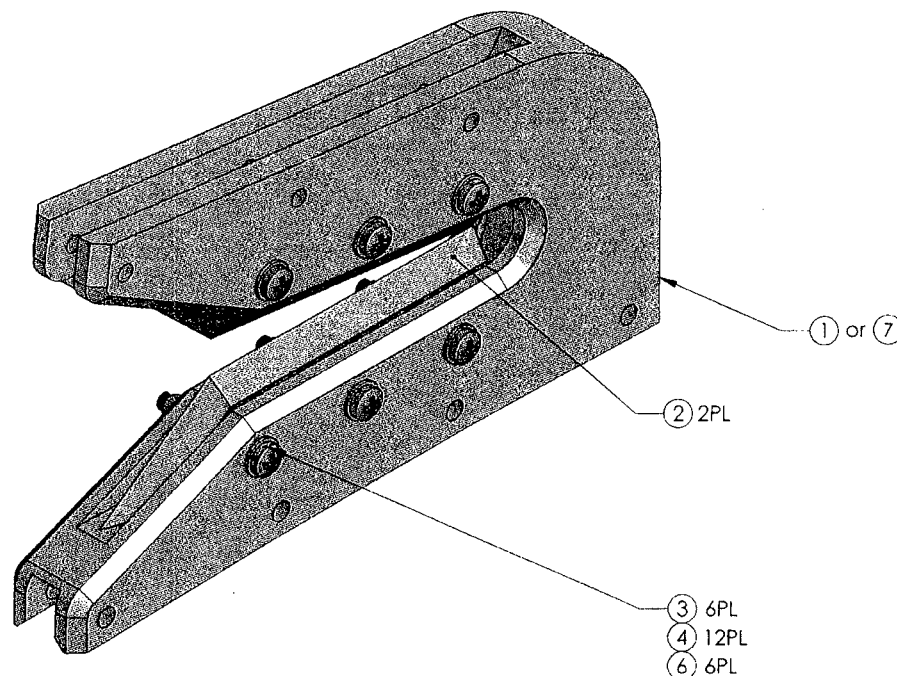
☐ YES
 ☒ NO

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PRODUCTION REVISION PER		ENG.
2	REPAIR RELEASE	05/22/06	F. BRAY
3	INCORPORATED REVISIONS FROM 0001	06/01/05	F. BRAY
4	INCORPORATED REVISIONS	06/01/05	F. BRAY
5	INCORPORATED REVISIONS	06/01/05	F. BRAY

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK;
PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER;
PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.



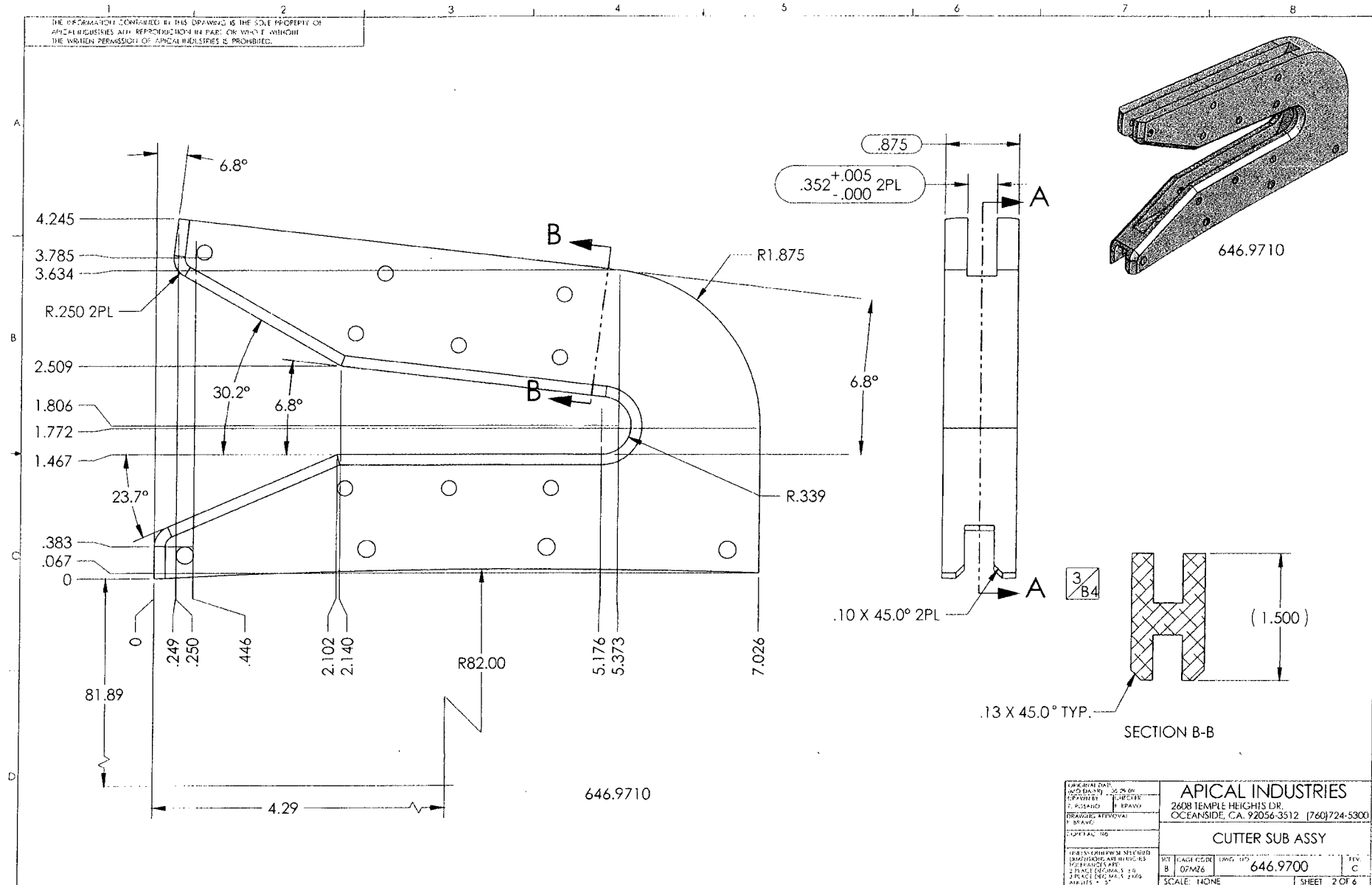
646.9701
or
646.9702

UNINCORPORATED ECN(S)

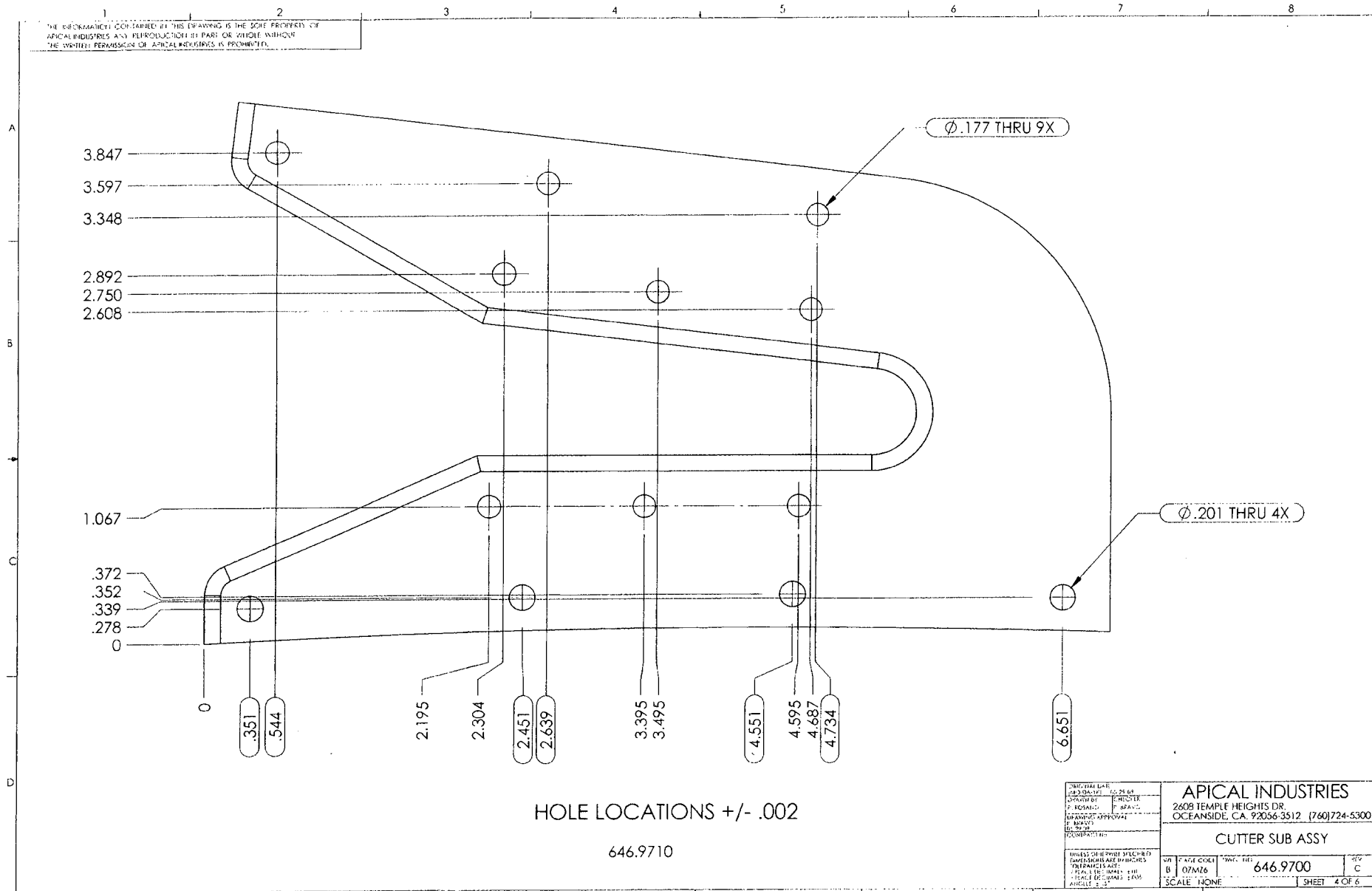
04559

1	7	646.9712	BODY (U CHANNEL)	△	△
6	6	601.1541	LOCKNUT	M521042LGS	
A/R	A/R	5	601.2764	RIV, LOCITE 598	
12	12	4	601.2764	WASHER	CLASS 1/4-18-1600
6	6	3	601.2765	SCREW	M527039.0019
2	2	2	646.9711	BLADE	△
	1	1	646.9710	BODY	△
			646.9702	CUTTER SUB ASSY (U CHANNEL)	
			646.9701	CUTTER SUB ASSY	
QTY	IND #	PART #	DESCRIPTION	MAT'L	SPEC.
PARTS LIST					
NEXT ASSY (S)					
646.9600					
APICAL INDUSTRIES					
2608 TEMPLE HEIGHTS DR.					
OCEANSIDE, CA. 92056-3512 (760) 724-5300					
CUTTER SUB ASSY					
APICAL INDUSTRIES					
2608 TEMPLE HEIGHTS DR.					
OCEANSIDE, CA. 92056-3512 (760) 724-5300					
CUTTER SUB ASSY					
APICAL INDUSTRIES					
2608 TEMPLE HEIGHTS DR.					
OCEANSIDE, CA. 92056-3512 (760) 724-5300					
CUTTER SUB ASSY					
APICAL INDUSTRIES					
2608 TEMPLE HEIGHTS DR.					
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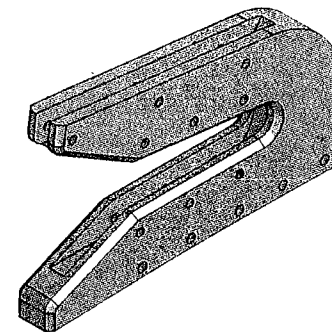
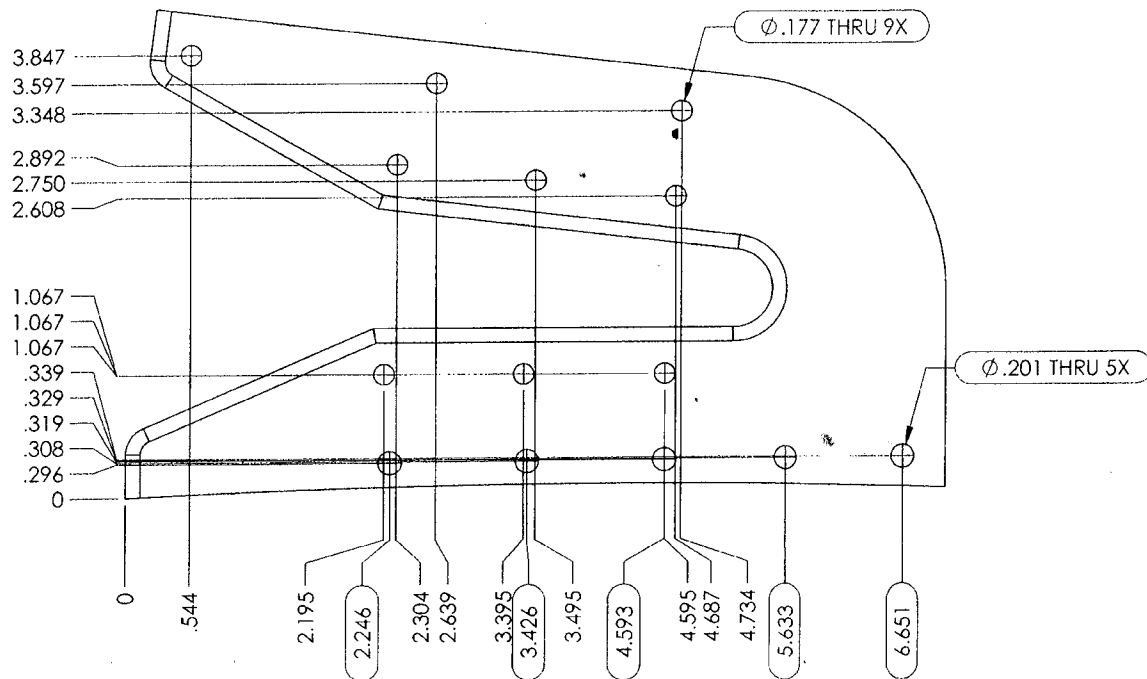
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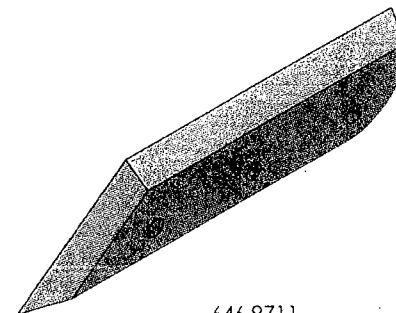
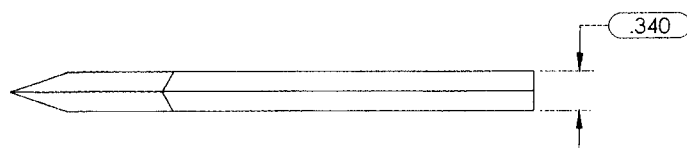
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ORIGINAL DATE 05/25/09			
DRAWN BY: J. HENDER			
F. FORGAC: J. HENDER			
F. BRAY: J. HENDER			
CO-ORDINATING			
UNITS: DIMENSIONS IN INCHES			
DIMENSIONS IN PARENTHESIS			
3 PLACE DECIMALS			
UNLESS OTHERWISE SPECIFIED			
NOTES: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.			
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8	07/11/06	646.9700	C
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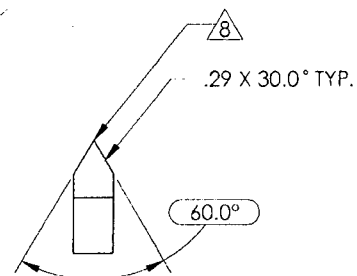
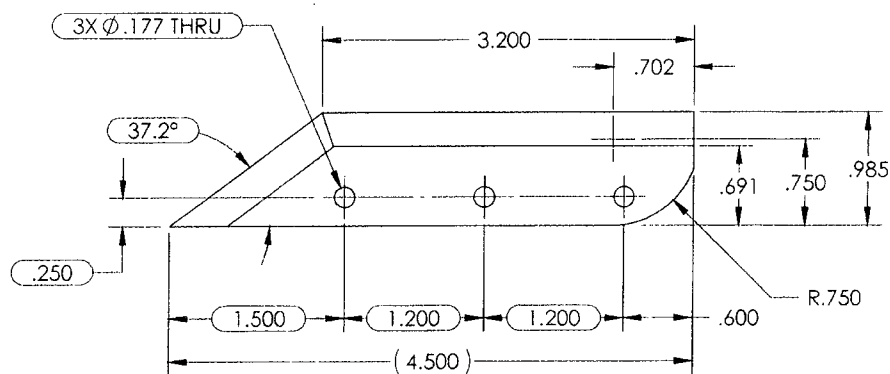
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

CUTTER SUB ASSY

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CHECKED BY: [] DESIGNED BY: [] DATE: [] DRAWN BY: [] DATE: [] SCALE: [] SHEET: [] OF []			
APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300			
CUTTER SUB ASSY			
PARTS LISTED: 1. CUTTER SUB ASSY 2. PLATE (CUTTER) 1.00 3. PLATE (CUTTER) 1.00 4. PLATE (CUTTER) 1.00	REV. C	646.9700	07/1/76
SCALE: NONE		SHEET 5 OF 6	

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO28086**

Purchase Order Date 4/13/2015

PO Print Date 4/13/2015

Page Number 2 of 3

Order From :

VC-MET004

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 450 473 1884

Ship To Contact

Ship To Phone

Ship Via: FedEx Overnight collect

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Line Total: \$0.00

3 130845

646.9711 BLADE

4/27/2015

Yes

4/27/2015

20.00

\$0.00

\$0.00

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL STEEL

PLEASE NOTE: DETAIL C OF C REQUIRED

Line Total: \$0.00

4 71401-45

PROCUREMENT
QUALITY CLAUSES

4/27/2015

No

4/27/2015

1.00

\$0.00

\$0.00

Procurement Quality Clauses

A005 right of entry

A012 chemical and physical test report

A020 non-destructive test/inspection identification

A021 dart aerospace processing

A024 process certifications

A026 certification of material conformance

Line Total: \$0.00

Note:

4/13/2015

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
301566	1	101624

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT / Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À / Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
28086		A2	2015/4/15	FEDEX

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---	-----------------

32 646.3013 BLADE

✓ (6) 646.3013 130894

✓ (6) 646.3014 130960

✓ (20) 646.9711 130845

1 BOITE DE CARTON

9,

SP15-04-28

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE CARTON	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 32

POIDS EXPÉDIÉ / Weight Shipped : 9,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 32

POIDS EXPÉDIÉ / Weight Shipped : 9,00

Signature:

Date:

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Rapport d'Inspection**Inspection Report**

BON DE TRAVAIL order	CHARGE load
301566	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

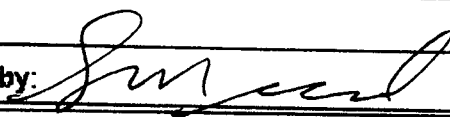
COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
28086		A2		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results				
HARDNESS		58 - 62 HRC	5	59 - 60 HRC
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
32	9	646.3013 BLADE (6) 646.3013 130894 (6) 646.3014 130980 (20) 646.9711 130845 1 BOITE DE CARTON		

SP15 01-28

24 April

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2015-04-17

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
301566	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
28086		A2		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
HARDNESS	58 - 62 HRC	5	59 - 60 HRC	
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
32	9	646.3013 BLADE (6) 646.3013 130894 (6) 646.3014 130960 (20) 646.9711 130845 1 BOITE DE CARTON		

SP15-04-28

COMMENTAIRES / comments

VAC HARDEN 1800F, 1:30 HR
DOUBLE TEMPER 400F, 2 HRS

L

Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

APPROUVÉ par / Approved by:

Isabel Otero
QA Technician



DATE: 2015-04-24